(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 9 June 2005 (09.06.2005)

PCT

(10) International Publication Number WO 2005/052996 A2

(51) International Patent Classification7:

H01L

(21) International Application Number:

PCT/US2004/038807

(22) International Filing Date:

19 November 2004 (19.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/523,235

19 November 2003 (19.11.2003)

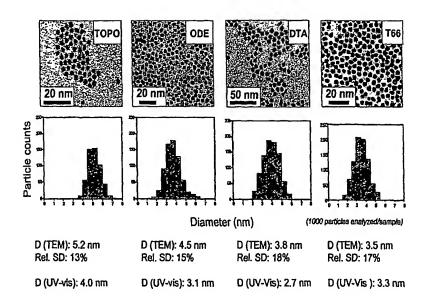
- (71) Applicant (for all designated States except US): WILLIAM MARSH RICE UNIVERSITY [US/US]; 6100 Main Street, Houston, TX 77005 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): ALKHAWALDEH, Ammar, S. [JO/US]; Intel Corporation, Logic Technology Development, RA3-410, 2501 NW 229th Avenue, Hillsboro, OR 97124 (US). PASQUALI, Matteo [IT/US]; Department of Chemical Engineering, MS-362, Rice University, P.O. Box 1892, Houston, TX 77251-1892

(US). WONG, Michael, S. [US/US]; Rice University, 6100 Main St., MS-362, Houston, TX 77005-1892 (US).

- (74) Agents: WESTBY, Timothy, S. et al.; Conley Rose, P.C., P.O. Box 3267, Houston, TX 77253-3267 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: NEW SOLVENTS AND NEW METHOD FOR THE SYNTHESIS OF CDSE SEMICONDUCTOR NANOCRYSTALS



(57) Abstract: New methods for the synthesis of nanocrystals/quantum dots are disclosed. The methods comprise use of reasonably-priced and commercially available heat transfer fluids (such as Dowtherm® A) as solvents to synthesize CdSe nanocrystals. Separation of nucleation and growth is achieved by quenching the reaction solution with relatively cold (room temperature) solvent to lower the solution temperature. Quenching may be followed by raising the solution temperature, to allow controlled growth to take place.

WO 2005/052996 A2



Published:

 without international search report and to be republished upon receipt of that report For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.